



Infertility Testing

Examining the “Male Factor” in Reproductive Dysfunction

BY SAMUEL T. THOMPSON, MD

As the saying goes, “it takes two to tango.” But when it comes to diagnosing and treating infertility, women tend to take the lead, while men reluctantly follow. Society still sees infertility as a predominately female issue, but in truth it is a couple’s issue.

In 30% of infertile couples, the cause is attributed to the male alone. In another 20%, pathology is found in the male and female. Therefore, the “male factor” in infertility is found in approximately half of all infertile couples. Despite the frequency of male-factor infertility, men are often reluctant to participate in fertility testing and treatment.

Confronting the idea of possible infertility causes many men to avoid testing, but it is important for both partners to participate. In fact, evaluating the male partner first, or at least concurrently, with the woman is key to lessening the lengthy, time-consuming, and expensive diagnosis and treatment process.

When compared to female infertility tests, male tests are relatively uncomplicated. Two properly performed semen analyses define the essential first part in the evaluation of the male and provide the foundation for further testing.

The semen analyses include several characteristics, but the most important are semen volume, sperm quantity or concentration, sperm motility, and sperm morphology. When these parameters are compared to established levels of adequacy, the likelihood of pregnancy (in the absence of a female factor) is accurately predicted.

Before any laboratory testing, it is essential to obtain a thorough medical history with an emphasis on any prior testicular insult or injury. For example, a mumps infection after puberty may involve testes, and if bilateral, can permanently destroy the mechanism for spermatogenesis. Injury to the vas deferens during inguinal hernia repair can severely impair the sperm transport process and thereby promote infertility.

Male-factor problems are classified into three broad categories: pretesticular, testicular, and posttesticular. The testis is like a factory that takes orders from corporate headquarters (the hypothalamus and pituitary gland), fabricates the product (sperm), and then delivers it to market via the ductal system to the prostate and seminal vesicles.

Pretesticular Problems and Treatments

Pretesticular problems are typically hormonal, dealing with hypothalamic or pituitary diseases that affect the release of luteinizing hormone (LH) and follicle stimulating hormone (FSH) and consequently limit testosterone and sperm production, respectively. If the gonadotrophic hormones are inadequate, the result is insufficient sperm and testosterone production. This is called secondary hypogonadism, and if it is diagnosed properly, replacement therapy with the appropriate gonadotropin is often successful in rectifying the abnormality.

Testicular Problems and Treatments

Testicular pathology adversely alters the environment of developing sperm. Past or present illnesses, such as mumps orchitis or renal failure, gonad toxins, such as recreational drugs and chemotherapy, and trauma to the testes, can all impair the production of healthy sperm.

A common testicular problem is a varicocele, an enlarged vein on the left side of the scrotum that causes blood to pool and elevates the intratesticular temperature. The condition doesn’t always cause infertility, but in cases where it does, it’s easily treated with outpatient surgery. In two-thirds of men, the treatment doubles their fertility chances.

Some men may suffer from chromosomal abnormalities that impair sexual development. The most common example is Klinefelter's Syndrome, a genetic disorder due to the presence of an extra X chromosome. Unfortunately, most infertility results from chromosomal disorders are incurable.

Posttesticular Problems and Treatments

Posttesticular infertility causes include disorders of sperm transport as well as disorders of sperm motility and function. A blocked, scarred, or absent vas deferens will not even allow a healthy sperm to reach its final destination. Conversely, a patent and normal transport system does nothing to assist a sperm with impaired motility.

Cystic fibrosis exemplifies a congenital condition wherein the ductal system (epididymis, vas deferens, and seminal vesicles) is severely hypoplastic or completely absent. Acquired sperm-transport disorders are usually the result of bacterial infection with subsequent scarring and ductal system obstruction. By far, the most common cause of ductal obstruction is voluntary vasectomy.

With the high instances of divorce and remarriage, many couples are interested in vasectomy reversal. Vasectomy is considered a permanent method of birth control. However, modern microsurgical techniques allow vasectomy reversal with a high degree of success. If the procedure is performed successfully within 10 years of a man's vasectomy, there's a high likelihood his sperm production will return to fertile levels.

Idiopathic Infertility

Idiopathic infertility is defined as infertility wherein no pathologic process is revealed in either the female or male partner. Approximately 20 percent of couples have this type of unexplained infertility.

In the case of the male, he could have "subfertility" with a sperm count inadequate to produce a pregnancy in the usual manner. Consequently, empirical therapy is used with the hope of improving the semen quality to a point that pregnancy can occur. Clomiphene is a drug used empirically to improve the semen quality. It is also used in females to enhance egg production.

Efficacy of Male Testing

Whether or not the cause of male infertility is identified, a urologist can typically make a confident diagnosis in a matter of six to eight weeks — a relatively short amount of time compared to what it takes to evaluate a woman.

Men are easier to troubleshoot. If we can rule out any problems with the man, then we can treat them before the woman must undergo costly, complicated, and time-consuming treatments.

The key is educating men about the process and stressing the importance of their participation for the couple's sake. Most men don't realize fertility is a male problem, too. Usually, the best way to get these messages across is for the physician to educate the woman so she can inform her partner. ■



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Diagnostic Imaging

Videourodynamics and Computerized Tomography

Central Indiana Imaging, a division of Urology of Indiana, provides physicians with an enhanced understanding of the lower urinary through imaging. Computerized tomography (CT) scans and videourodynamics ensure high-quality diagnostic-imaging services to our patients, as well as patients referred from other practices.

Also known as computerized axial tomography, CT is more detailed than a general x-ray. It is one of the best tools for studying the chest and abdomen since it provides detailed, cross-sectional views of all types of tissue. Because it shows detailed images of many parts of the body, including bones, muscles, fat, and organs, it is often used to diagnose several types of cancers.

Accurate Evaluation

The image allows physicians to not only confirm the presence of a tumor but also measure its size, precise location, and the extent of impact on nearby tissue. CT examinations are also used to plan and administer radiation treatments for tumors, to guide biopsies and other minimally invasive procedures, and to plan surgery and determine surgical parameters.

CT images clearly show even the smallest bones, as well as surrounding tissues such as muscle and blood vessels, which makes it invaluable in diagnosing and treating a wide range of diseases and injuries. CT images are also used to measure bone-mineral density for osteoporosis detection. In trauma cases, the images can quickly and effectively identify injuries to internal organs. CTs also play a significant role in the detection, diagnosis, and treatment of vascular diseases that can lead to stroke, kidney failure, or even death.

Precise Assessment

Videourodynamics combines fluoroscopy (a technique used for examining internal structures by viewing the shadows cast on a fluorescent screen by objects or parts through which x-rays are directed) with conventional urodynamics. It is a state-of-the-art diagnostic tool used to evaluate patients with complex voiding dysfunctions and neurogenic bladder.



Videourodynamics is useful for evaluation in the following cases:

- Stress incontinence following surgery
- Overactive bladder refractory to medical and behavioral therapy
- Patients considering collagen-injection therapy
- Patients with lower-urinary-tract symptoms refractory to alpha-adrenergic blockade who are considering more aggressive therapy
- Patients with complicated urinary incontinence
- Patients seen for obstructed lower-urinary-tract surgery
- Patients suspected of having bladder-outlet obstruction, including those with pelvic-floor dysfunction and bladder-neck dyssynergia
- Patients with possible urinary fistula, urethral diverticulum, or vesicoureteral reflux
- Patients with congenital abnormalities of the bladder

Central Indiana Imaging is conveniently located in the Greenwood office, which includes free parking and easy access. When you refer a patient for videourodynamics, we will provide a complete study and a dictated interpretation. ■